

The Human Capital as an Engine of Sustainable Development: Analysis of the National and Regional Reality of Portugal

O Capital Humano Como Motor de Desenvolvimento Sustentado: Análise da Realidade Nacional e Regional de Portugal

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Abstract/ Resumo

The development of contemporary societies, strongly promoted by the so-called knowledge society, builds its pillars on the development of technology and the importance of networks of production and diffusion of knowledge. Concepts such as innovation and human creativity are the levers of the new creative dynamics of development and play a leading role in all dimensions of life, both social and economic. In this study we start from the principle that human capital is crucial in building, both national and regional, a better educated, more innovative and intelligent society. To measure human capital, we use the variables available in the 2008 *European Values Survey*, both regarding the central concepts of human capital and other dimensions that we believe are central to this process. The results show a value of national human capital that is between the low and middle level of the scale, with significant regional differences. The results also show a significant relationship between human capital and the values that prioritize self-fulfilment and participation such as determination and independence and participatory commitment, essential conditions to foster a more plural and just society, with fewer social inequalities.

Keywords: Human capital, development, entrepreneurship, creativity, innovation

O desenvolvimento das sociedades contemporâneas, promovido sobremaneira pela chamada sociedade do conhecimento, assenta os seus pilares sobre o desenvolvimento da tecnologia, a importância das redes de produção e difusão de conhecimento. Conceitos como os de inovação e criatividade humanas são a alavanca das novas dinâmicas criativas de desenvolvimento e desempenham um papel preponderante em todas as dimensões da vida, tanto social como económica. Neste estudo, parte-se do princípio de que o capital humano é determinante na construção, tanto nacional como regional, de uma sociedade melhor formada, mais inovadora e inteligente. Para medir o capital humano, recorremos às variáveis disponíveis no *European Values Survey* para o ano de 2008, quer contemplando os conceitos centrais de capital humano, quer outras dimensões que julgamos centrais neste processo. Os resultados revelam um valor de capital humano nacional que se situa entre o nível *baixo* e *médio* da escala, com diferenças regionais significativas. Mostram também relações significativas entre o capital humano e os valores que priorizam tanto a autorrealização e a participação como a determinação e independência e o compromisso participativo, condições essenciais para fomentar uma sociedade mais plural, mais justa e com menos desigualdades sociais.

Palavras chave: Capital humano, desenvolvimento, empreendedorismo, criatividade, inovação

1. INTRODUCTION

One of the questions often raised in contemporary society is the urgent need to invest in people, because it is in them that developmental potential lies. Institutions need to upgrade, to create new concepts, to imagine new worlds and for this investment in structures is not enough, nor even important, but investment in people is essential. It may be said that people are the engine of any institution, and this is true in both the poorest and the most developed countries; in the more peripheral regions as in the more central ones. However, in any of these realities, there is a concern for the training of people in both, and even though the accent is different the focus is the same - schooling. In the poorest regions and countries, the issue at stake is clearly basic education for all, while in the more developed countries, because that is already a given, the question is how to achieve a 'good education' in the context of democracy and participation, plus how to tackle the skills deficit to cope with the new models of cultural and social development.

The central question of human capital, as we have seen, relates to education, and so investment in education becomes a country or region's barometer of development, as if by looking at investment in education it is possible not only to interpret the situation today, but also, and primarily, to anticipate the state of development of a particular fact or context.

As human capital is so strongly identified with investment in education, it can take different and sometimes too broad a form, depending on the context. In some situations it is only identified with the level of education, training or work experience, and in others it relates to processes of change and innovation linked to the productivity of the individual and their well-being, and in this case it may embrace investment linked to health and nutrition.

In any case, human capital is essential to determining satisfaction with life, a differentiating construct for welfare that can generate open minds and dynamic individuals ready for change, for experimentation and innovation, which are essential characteristics for independent initiatives and also genuinely engaged in decision making.

In the study presented here, we discuss the concept of human capital and its impact on Portuguese society, as well as in their respective continental regions, seeing how far it is able to generate new identities, that are more plural, more just and less unequal, that would be the basic conditions for the development of a society, and thus the positive appreciation of life, ultimately instrumental to the welfare and happiness of individuals.

This study is organized as follows: first the theory of human capital is outlined, then the methodology and results of the study are presented, and finally these results and their implications in contemporary society are discussed.

1.1 Education as an engine for development

There has been a marked concern in recent decades to achieve the education and training of the population in general, as demonstrated by United Nations initiative Education for All (2009), which proposes to give basic education to all children, young people and adults. This initiative is so broad that it was signed by 164 governments who pledged, together with various development agencies, with civil society and with the private sector, make every effort to ensure this programme is implemented successfully and embraces the greatest number of people.

While this initiative essentially aims at basic education for all, concern to improve education standards is shared at other levels, which is why the World Declaration on Higher Education for the Twenty-First Century (UNESCO, 1998) proposes to give equal opportunities to all for higher education and life-long learning.

Education is seen as a genuine investment that can change both the present and the future. This view is not new in history; it gained popularity under the industrial revolution which generated an urgency for new responses for which the majority of the population was not prepared. Education, which was hitherto restricted to certain groups (Bloch, 1963; Cipolla, 1993), thus became a programme for the masses, with the industrial revolution (Katz, 1987). The entry of women into the

labour market and the extension of their rights of citizenship (Ramirez *et al.*, 1987) further contributed, albeit very slowly, to the spread of education and gave it a new status (Grubb & Lazerson, 2004).

That said, it may be asked why education is so central in society. Is investment in education really so beneficial? Adam Smith stated that ‘An instructed and intelligent people, besides, are always more decent and orderly than an ignorant and stupid one’ (Smith *apud* Kandel, 1933: 51). Almond and Powell (1966), Coleman (1965), and Zolberg (1966) all agreed that investment in education was a necessary condition for creating and maintaining core values and free citizens. The same opinion is shared by Green (1990) and Torres (1998). While Green (1990) takes a sociological approach to examining the role of education in social cohesion and the maintenance of cultural and national identities in England, France and the United States, C. A. Torres (1998) sets out from a critical perspective to study connections between multiculturalism, citizenship and democracy. *The Economist* (1992: 17) indicates that ‘Investing in education is for the 90s what nationalization was for the 40s and privatization for the 80s, the universal panacea of the moment.’ Also UNESCO’s Education for All Global Monitoring Report (UNESCO, 2011: 3) refers to the need of education to maintain peace, thus seeing investment in education as a mediator of understanding and conciliator of conflict: “Education has the potential to act as a force for peace - but often schools are used to reinforce the social divisions, intolerance and prejudices that lead to war. No country can expect to live in peace and prosperity unless it builds mutual trust among its citizens, starting in the classroom”.

The same report presents empirical evidence to test whether low levels of education correlate both with conflict environments and gender inequalities and with low literacy levels: ‘Over 40% of children out of school live in countries affected by conflict. The same countries have some of the largest gender inequalities and lowest literacy levels in the world’ (UNESCO, 2011).

Thus there is an overwhelming set of texts, supported by an equal number of strategic proposals - which we believe are needless for the case we are studying - that state that is not compatible to talk about development with low levels of education.

According to Nunes *et al.* (1989) it was poor basic and technical education that handicapped Portugal in its efforts to achieve sustained growth until the beginning of the century. Valério (1993) also says that Portugal’s backwardness in educational terms prevented it from growing in economic terms.

Furthermore, the World Declaration on Higher Education states in its preamble:

“Without adequate higher education and research institutions providing a critical mass of skilled and educated people, no country can ensure genuine endogenous and sustainable development and, in particular, developing countries and least developed countries cannot reduce the gap separating them from the industrially developed ones” (UNESCO, 1998).

The same statement goes even further by referring to higher education as essential to building a closer and more sustainable society: “We affirm that the core missions and values of higher education, in particular the mission to contribute to the sustainable development and improvement of society as a whole, should be preserved, reinforced and further expanded” (UNESCO, 1998).

Despite the correlation between universities, economic life and sociocultural development that a number of authors have been talking about and that have dominated the political agenda, it is important to note that this correspondence has been subject to criticism. While it is not our purpose here to explore this question, relevant authors are Santos (1998), Magalhães (2004) and Imaginário (2006).

The relationship between education, taken in its broadest sense, and technological development has been equally open to discussion. This interconnection makes sense in light of a European Union that is committed to becoming a knowledge society, reconciling economic and sustainable development with social inclusion.

According to Giddens (2009: 916), a knowledge economy should be

“An economy in which a large part of the workforce is engaged, not with the physical production or distribution of material goods, but with planning, development, technology, marketing, sales and service. An economy in which ideas, information and knowledge are the basis of innovation and economic growth.”

In the same vein, Jeremy Rifkin (2000: 11) says that “wealth is no longer vested in physical capital but rather in human imagination and creativity”. And this capital, as noted by

Ronald A. Beghetto and James C. Kaufman (2017), is a habit. The problem is that the school often considers it a bad habit, so it ends up killing the person's natural creativity.

People who were very determinant in the twentieth century, such as Steve Jobs, Bill Gates or Craig Venter, so far as we know, were not exactly bright students at school. This may reveal that the educational system does not always stimulate creativity.

According to Alencar (2005), creativity is crucial to meet the challenges of this century. And Gardner (2011) goes further by noting that the intelligence needed to build the future will have to be disciplined, synthetic, creative, respectful and ethical. Costa (2003), Alegre *et al.* (2006), Schleicher (2011) are also among those who mention creativity, particularly creative and cultural activities, as being essential to the development of sustainable economic and social dynamics.

We could add to the concepts of change and creativity those of innovation and the willingness to develop the conditions that respond to changes regarded as fundamental. In this context, creativity is deeply correlated with the innovation insofar as it helps to create something new. They are therefore not absolute concepts since they rely on certain historical contexts (Mansfield & Busse, 1981; Azevedo, 2007). Some newer theories see creativity as a sociocultural phenomenon in which education, for reasons of strength, is an important factor (Csikzentmihalyi, 1999; Camagni *et al.* 2004). Pedro Costa *et al.* (2012: 125) in defining the notion of creativity, says the urban environment “can operate as a lever to generate creative dynamics that are inherently inseparable from the characteristics of territorial space”. It is the emergence of awareness of the role of creativity in development with the promotion and dissemination of concepts such as ‘Creative Cities’ and ‘Creative Activities and Industries’. These concepts are today the ones that are best suited to the globalized society since they manage to reconcile the principles, ideas and values that in traditional society sometimes seemed antagonistic.

1.2 The importance of investment in human resources

Contemporary societies need to constantly be reinvented and search for new solutions to all the new problems; new techniques and new

strategies must always be in the pipeline; new methods to achieve new results seem to be the way forward. But this requires huge investment in human resources (Subramaniam & Youndt, 2005), since they are the main driving force of any institution (Grant, 1996); human resources promote an institution, they provide added-value and ultimately generate greater or lesser development. But it is also essential to invest in intelligent systems, of course, because we live in intelligent societies (Innerarity, 2011) where little relies on manual skills, everything is under remote control and everything changes too quickly, which requires an enhanced innovative capacity that is more imaginative and more entrepreneurial (López *et al.* 2009). These concepts define and are inherent to the knowledge society (Asheim *et al.*, 2006). They are also accompanied by the wider dissemination of knowledge itself, which is also typical of complex societies. Furthermore, the creation and dissemination of knowledge are apparent in different aspects and dynamics of life, reconfiguring every area of it: from social life to cultural life, from political life to economic life - in this context, see Simmel (1979) regarding the structural characteristics of social practices.

We thus arrive at a society that converts information into knowledge (Sveiby, 1997), and this transformation presumes the availability of human resources able to learn, undertake, innovate and create (Bontis *et al.*, 1999). Resources that by having more human capital are the drivers of new dynamics and concepts that only make sense in light of a technological, global and networked society.

1.3 Human capital and new development models

The development of society depends on human capital, defined here as knowledge that generates sustainable knowledge.

According to Youndt *et al.* (2004), we can call human capital the knowledge that the person acquires through life, through the accumulation of different tools and capacities, which makes him better able to respond to the problems of society. Therefore, just as the success or failure of an organization depends on the quality of its resources, so the greater or lesser degree of social sustainability will depend on how politicians, educators and policy makers and others manage the opportunities of the present.

Several authors have commented on the importance of human capital, both as a decisive factor of development (Sen, 2002; De la Fuente & Doménech, 2006) and as a determining agent of economic growth (Lucas, 1988).

As new models of development have emerged human capital has broadened and can be understood either as a productive input that causes naturally more or less economic growth (Riley, 2012), or by its positive impact on the ability to innovate, a factor closely interlinked with new technologies (Pistorius, 2004; Horwitz, 2005).

Education, as an essential integrating facet of human capital, thus emerges as a central link of the innovation phenomenon, since the higher the education level the greater the capacity for innovation and, consequently, the higher the level of development of a community.

1.4 Measure of human capital

A significant part of the literature on the study of human capital sees formal education, usually measured by education level, as its central axis, so that to measure it is to assess the level of human capital as understood by authors such as Hanushek and Schultz (2012). Hanushek and Woessmann (2007) state that rather than measuring the level of years of schooling, it is important to analyse human capital for the quality of education. However, to objectify this variable, much fieldwork is needed to suppress its subjective character. Barro (1991) showed that higher levels of human capital correspond to higher levels of economic growth, and also resorted to the level of schooling, but in this case only to secondary education. Benhabib and Spiegel (1994), in a longitudinal analysis between 1960 and 1985 that looks at human capital in 78 countries, assess it through the level of education achieved in the past. Romer (1990) studies human capital through the stock of knowledge, in addition to its more traditional variables such as level of education and professional experience. Other authors, unhappy at using the rates of literacy and schooling to measure human capital, quantified it through the population's average years of schooling by using econometric techniques (Glaeser *et al.*, 2004). Lepak and Snell (2002) measured human capital through work, using factors that measured

the knowledge and skills of individuals and others that measured their specificity.

As we can see, there is no single or unanimous way to evaluate human capital, though most authors evaluate it from the level of formal education. While this is acceptable it is still a very reductive approach since it ignores other equally important aspects such as life-long learning, any professional experience, family transmission of human capital, the number of journeys, etc. Furthermore, as Aurora Teixeira (1999) mentioned, since the older generations have lower levels of education they tend to have lower levels of human capital, and so this segment tends to be underestimated.

That said, our study starts from the assumption that human capital stimulates the construction of a more creative and innovative society, based on a development model that prioritizes self-fulfilment, independence and freedom as their essential banners.

2. METHODOLOGY

There is much literature on the operationalization of human capital. The methodology varies according to the variables under analysis, which determines the preference for different econometric models. In this regard, see the Solow models, applied by Mankiw, Rommer and Weil (1992); the analysis of data between countries (Islam, 1995); the way the OECD conducts its studies (Hansson, 2008), the Human Development Index (HDI), etc. These and other models have their virtues, but simultaneously their weaknesses, as we have already mentioned.

Human capital is not a unanimous measure that assesses only one area of life, but a capacity acquired by the individual who becomes a capital gain in its context, able to add social, cultural or economic value. We therefore have to build a measure of human capital that is as comprehensive as possible, using the variables from the 2008 *European Values Survey*. It should cover both the central concepts of human capital, such as education level, and other aspects that we consider key to this process, such as age, educational level of parents, the size of the town in which they live, their occupation, work situation and salary.

The use of this measure will serve to evaluate the human capital of the Portuguese, as

well as to perceive the degree of convergence of this capital between its five regions. This regional analysis will, in turn, help us understand how regional development has taken place, since if regions converge at the level of human capital, greater equality will be found between regions and, naturally, the lower the regional divergence.

Let us now explain the rationale for each of these options:

Age is gaining importance in the context of labour relations. Younger people are better able to enter the labour market by virtue of their youth, their inherent dynamic and by their ability to adapt to any environment; older individuals, however, are ignored by the markets since they do not add direct gains to development. Importantly, in recent years we have witnessed the rise of youth unemployment, so we have young people who theoretically do not produce because they are being educated (18-22 years) alongside others who have completed their education and now find themselves unemployed (23-26 year-olds). We also assume that the most active age group for being in paid work and thus better rewarded is the 30-43 bracket. The 44 to 54 year-olds, although in an active phase of life, may represent a decline, since if they lose their job it is a difficult age to return to the labour market in an equivalent position, yet not as difficult as it is for the 55-57 year-olds. There is an age that we see here as a process of transition. It would embrace individuals who, although young, academically well prepared and very skilled, not yet belong to the group of decision makers. These are the ones in the 27 to 29 age bracket.

Regarding the educational level, it is assumed that the most elementary level of education contributes least to human capital, and university graduates do most to develop it. The same happens with the educational level of parents, whereby those who have no education or only pre-school level have significantly less human capital than those who achieved higher education.

As for the size of the habitat, it is understandable that people who live in smaller and more peripheral localities have fewer opportunities, less access to cutting edge technology, culture, etc., unlike those living in more urbanized areas with more creative logic who thus offer greater human capital.

Regarding the type of occupation and employment status, it is assumed that human capi-

tal is higher in individuals who develop more socially differentiated work and have a full time job than in individuals without a skilled job or who are jobless.

Finally, regarding salary, it is assumed that individuals with higher pay, who *a priori* generate greater productivity, have greater human capital than those on a lower income.

Having defined the variables that comprise our measure of human capital, it was then re-configured, starting from the following procedure:

1) Age: 58-65 years = 0; 18-22, 23-26 and 55-57 = 1; 44-54 and 27-29 = 2; 30-43 = 3;

2) Level of education: Basic education incomplete = 0; basic education (compulsory) complete, vocational and secondary incomplete = 1; vocational and secondary complete = 2; university studies (with or without award of degree) = 3;

3) Parents level of education: None, Pre-school, 1st and 2nd cycles = 0; 3rd cycle = 1; secondary education = 2; higher education (all degrees) = 3;

4) Size of habitat: -5,000 pop. = 0; 5,000-50,000 pop. = 1; 50,000-500,000 pop. = 2; + 500,000 pop. = 3;

5) Type of occupation: none = 0; unskilled = 1; skilled = 2, management = 3;

6) Employment situation: 0 = unemployed, retired, housework, student = 1; part-time work = 2; independent full time job = 3;

7) Pay: low = 0; medium-low = 1; medium-high = 2; high = 3.

The *human capital index* was constructed from seven variables, each one with 4 positions. The index was aggregated in a 5 point scale, where 1 is 'very low' and 5 is 'very high'.

For this estimation, we used the most common model of the composite indices (Hagerty *et al.*, 2001; Peña & Romo, 2003; Hagerty & Land, 2007) calculated from the average of all values, assuming identical weights in each of the dimensions.

The reliability of the index was analysed through Cronbach's alpha (1951), which presents a satisfactory coefficient for these cases, where $\alpha = 0.59$. According to Loewenthal (1996), a reliability value of 0.6 can be considered acceptable in cases where the scale has less than 10 items as is the case here. In fact,

Nunnally (1967) had already mentioned that, in the early stages of investigation, as in the case of the exercise we do here, achieving a reliability value of 0.6 or 0.5 may suffice.

Looking at the relationship between the *human capital index* and its components we find positive correlations, especially for *level of education* and *occupation* (both, $r = 0.64$), showing less significant relationships with the *size of habitat* ($r = 0.37$) and *educational level of the parents* ($r = 0.44$).

If we take into account the relationship between the components of the index, we find that the *least significant* correlations are between the *occupation* and *educational level* with *age* ($r = 0.07$ and 0.08 , respectively) and at the other extreme, the most positive, between *occupation* and *pay* with *educational level* ($r = 0.58$ and 0.35 , respectively) (see T. 1.).

Table 1- Correlation matrix (r of Pearson) between the components of ICH with their own ICH

	Age	Educational level	Size of habitat	occupation	Employment situation	Pay	Parents' education level	ICH
Age	1							
Educational level	0.08**	1						
Size of habitat	ns	0.10**	1					
Occupation	0.07 $P < 0.05$	0.58**	Ns	1				
Employment situation	0.28**	0.12**	ns	0.15**	1			
Pay	0.13 $P < 0.05$	0.35**	0.23**	0.27**	0.31**	1		
Parents' education level	ns	0.34**	0.15**	0.25**	-0.07 $P < 0.05$	ns	1	
ICH	0.47**	0.64**	0.37**	0.64**	0.55**	0.63**	0.44**	1

Source: Elaborated by the author based on EVS (European Values Survey), 2008.

Base: Entire Portuguese population.

** The correlation is significant at the 0.01 level (bilateral). The exceptions are duly mentioned in the table. The non-significant values are identified as ns.

3. RESULTS

3.1 Portuguese human capital

If we look at the *human capital index*, it appears that on a scale of 1 to 5, where 1 represents *very low* and 5 *very high* human capital, Portuguese human capital is below the average of the scale (3), with an average score of 2.8, which is between the *low* and *medium* range.

Distribution on the scale shows that the majority of the Portuguese population has a *low human capital* (51%), with those with *high human capital* being a very small percentage (3%) (see T. 2.).

If we analyse the same reality by region, we can see that in the Lisbon area human capital is the highest (3.1), and on the opposite side the Algarve, with the lowest average (2.2). The other regions of the country follow the general trend of the Portuguese population, presenting an average of 2.8 (see T. 3).

By reading *human capital by generations*¹, taking into account the Portuguese population as a whole, it is observed that the older generations, as one would expect, are the ones with the lowest average human capital. In an opposite position are the generations of more active age and with greater professional and financial stability, namely the generation of 1970-79 and 1960-69, which present the highest levels of human capital (3.1 and 2.9, respectively). This reality is due to the fact that they are generations that have graduated and entered the labour market in a period of greater stability and growth in the country. On the other hand, this level of human capital translates into higher academic degrees, more valued employment status, higher wages and more culturally favoured family contexts (see T. 4).

¹ There are significant differences in the level of human capital between generations: $F(5, 1.511) = 98,318, p < 0,001, \eta^2 = 0,25$.

Table 2 Human Capital Index

%					Average
very Low	low	average	high	very high	2.77
12	51	34	3	0	

Source: Elaborated by the author based on EVS, 2008.

Base: Entire Portuguese population.

Table 3 Human Capital Index, by region

Region	North	Centre	Lisbon	Alentejo	Algarve
ICH (Average)	2.7	2.7	3.1	2.7	2.2

Source: Elaborated by the author based on EVS, 2008.

Base: Entire Portuguese population.

This situation is no longer the same among the younger generation born between 1980-90, contrary to what might be expected, since it has seen its average human capital declined to 2.7, value below the average scale level and which shows the difficulties that the younger generations live, mainly in obtaining a stable

and well paid job, since in terms of schooling is a generation that has more and more access to higher academic degrees (see T. 4).

Regarding analysis by gender, the data show us that there are no differences in the level of human capital between men and women ($t(1,551) = 1.959, ns$) (see T. 4.).

Table 4 Human Capital Index, according to generational cohorts, gender and ideology
(Percentage in-line)

		Very Low	Low	Average	High	Very high	Averages
Cohortes	1930-39	63	31	6	0	0	1.9
	1940-49	64	32	4	0	0	1.9
	1950-59	15	67	16	3	0	2.6
	1960-69	3	53	41	4	0	2.9
	1970-79	2	43	51	5	0	3.1
	1980-90	10	56	33	1	0	2.7
Sex	Men	9	51	37	2	0	2.8
	Women	14	51	30	4	0	2.7
Ideology	Left	12	47	40	1	0	2.8
	Centre	9	48	39	4	0	2.9
	Right	10	53	32	5	0	2.8

Source: Elaborated by the author based on EVS, 2008.

Base: Entire Portuguese population.

If we analyse the same variables by region, it can be seen that in the Lisbon region, regardless of generation, the highest human capital is found, and on the opposite side the Algarve, in almost all generations. We can thus deduce from this analysis that it is in the Lisbon region that there is more opportunity for access to better academic levels, better jobs and higher salaries. If we analyse the averages per generation, it is observed that it is the generation of 1970-79 that, independently of the region, pre-

sents the highest level of human capital, being the values situated in the average level or above the average level of the scale in all regions, with the exception of the Algarve (average of 2.6) (see T. 5).

Looking at human capital by gender, averages now show that, regardless of the region of the country, there are no differences in the level of human capital between men and women (see T. 5).

Analysing the *human capital* according to the political ideology by region of the country, there are different behaviours to emphasize. It is observed that it is the individuals with Centre ideologies, who have the highest level of human capital in all regions, with the exception

of the Algarve, where it is the ideology of the Left that stands out most (average of 2.4). In turn, individuals with a Right-wing ideology have the lowest human capital, with the exception of Lisbon where the Left ideology occupies this place (average of 2.9) (see T. 5).

Table 5 Human Capital Index, according to generational cohorts, gender and ideology, by region of Portugal (Average)

		North	Centre	Lisbon	Alentejo	Algarve
Cohorts	1930-39	1.9	1.8	2.4	1.7	1.7
	1940-49	1.8	1.8	2.4	1.7	1.7
	1950-59	2.5	2.4	2.8	2.5	2.6
	1960-69	2.9	2.8	3.3	2.9	2.5
	1970-79	3.1	3.0	3.3	3.0	2.6
	1980-90	2.7	2.5	3.1	2.6	2.4
Sex	Men	2.7	2.7	3.1	2.7	2.3
	Women	2.7	2.6	3	2.7	2.2
Ideology	Left	2.8	2.7	2.9	2.7	2.4
	Centre	2.8	2.8	3.3	3.0	1.9
	Right	2.7	2.6	3.2	2.7	2.1

Source: Elaborated by the author based on EVS, 2008.

Base: Entire Portuguese population.

3.2 Human Capital and the Portuguese values dimension

It is now important to understand the values underlying the individuals with different levels of human capital. Basically, we need to understand what drives individuals to make their structuring choices.

As mentioned in the theoretical framework, the most recognized human capital is identified through wider horizons, more intense rhythms of formal and informal learning, more comprehensive work experiences, and the dimensions that underlie this entrepreneurial culture also assume that behind this there coexists a more autonomous, more determined, free and independent identity.

To better understand how these dimensions are interconnected, we shall examine the values dimension of the Portuguese according to their human capital. An index of individualization and an index of post-materialism are created for this purpose.

It is assumed that the so-called advanced industrial societies experienced a process of cultural convergence marked by two major trends that we deem inseparable: first, the increasing individual empowerment (Vala, 1993; Halman, 2003), and second, the emergence,

according Inglehart (1997), the rise of post-materialist values, which mainly affect the younger generations, with better education and more differentiated socio-economic levels (Vala, 1993; Freire, 2001; Inglehart, 1997).

Thus, individualization and the tendency towards post-materialist values appear as two faces of the same process of a globalized society.

The measure of individualization was adopted from the set of responses² identifying the major areas of values that move individuals and that emerge as major goals in life, which are similar to what Rokeach (1973) dubbed as final values (Pereira *et al.*, 2005). A polarization of values is clear in this set of responses³, with the emphasis on either traditional princi-

² Individuals were thus asked about what *qualities can be taught to children at home*, indicators that can represent the values that individuals consider essential to life. The individual could choose up to 5 of 11 options. The hypotheses were: having good manners, being independent, being a worker, sense of responsibility, having imagination, being tolerant and respecting others, being thrifty, being determined and persevering, have religious faith, not being selfish and being obedient. The answers could vary from 0 (not mentioned) and 1 (important).

³ The responses were subjected to principal component factor analysis, verifying the two different polarization axes. Varimax rotation was used to minimize the number of variables having high saturation for each factor, enhancing the tendency for the formation of uncorrelated components and we forced construction of a solution with only one factor.

ples or principles that express individualization. While obedience and faith are at one extreme, as values most identified with traditional principles, at the other is independence and determination, as values that best represent the principles of individualization. It was precisely this polarization that gave rise to our individualization index.

The post-materialism measure was drawn from the theory of Inglehart (1977), in which respondents are asked to indicate which of the four most important objectives (goals) for the country they consider most important to achieve in the next few years, and which is the second most important⁴. Individuals who opted for the first and third option (physical and economic security) are classified as *materialists*, while those who preferred the second and fourth option (participation and intellectual freedom) are labelled *post-materialists*. Those opting for one materialist and one post-materialist item are characterized as *mixed*.

Now analysing the *human capital index* according to the *index of individualization*, it appears that the higher the *human capital* the greater the commitment to the values of *independence and determination*. Although this correlation is weak ($r = 0.16$, $p < 0.001$), it is found in the mean values among different Portuguese individuals: an individual with a *very low human capital* has an average value of 2.8 for *individualization*, that is, he/she favours traditional values of *obedience and faith*. Individuals with a *high level of human capital*, however, are those with greater allegiance to the individualization values of *independence and determination*, with an average individualization level of 3.8⁵.

Otherwise, the data permit the inference that the higher the educational level, the more differentiated the occupational status, the higher the salaries, with individuals coming from more advantaged family backgrounds and most tending to focus on individualization values in their lives.

If this hypothesis of *individualization* is correct a modern society may be expected, one with greater access to culture and education, which is defined not only by personal auton-

omy but also by the pursuit of self-fulfilment and, as Inglehart (1997) observes, both these positions typically expressing post-materialist values appropriate to advanced societies, based more on ideas of self-fulfilment and participation (post-materialism) than on survival and economic well-being (materialism).

Crossing this *post-materialism index* with *human capital*, it appears that individuals with post-materialist values have a higher average human capital (3.1), i.e. individuals with higher levels of education, occupational status and higher salaries and from culturally advantaged family backgrounds are those who value the ideas of self-fulfilment and participation (post-materialism) in their lives. On the other side we have individuals who value the ideals of survival and economic well-being (materialism), and have a lower average human capital⁶ which is below the average range (2.7). Hence, it can be assumed that individuals with lower levels of education, a more unstable and less favoured occupational situation prioritize economic well-being and survival in their lives.

If we take the same analysis by region into account, there is a similar tendency between regions, that is, individuals with more post-materialistic values are also those with the highest level of human capital and, on the opposite side, there are individuals who identify more with materialistic values with a lower level of human capital (see T. 6).

In brief, it turns out that in Portugal there is a positive linear correlation between materialism / post-materialism and individualization, which indicates that the higher levels of individualization correspond to higher levels of post-materialism and, conversely, stronger traditional principles to higher levels of materialism ($r = 0.08$, $p < 0.001$). Thus, it appears that the higher the human capital the greater the commitment to post-materialist values and individualization.

Another evaluative dimension that identifies human beings is their stance with regard to the common good, i.e. it is their civic attitude and posture in defence of certain principles, values and practices seen as essential to the preservation and integrity of what is common. Propriety can thus be understood as a decisive mark of respect for the other and a guarantee

⁴ The four proposed items were: 1. To keep order in the country; 2. To give people more opportunities to participate in important policy decisions; 3. To fight rising prices; 4. To protect freedom of expression.

⁵ ANOVA results show that there are differences, though slight, in the degree of individualization between the different levels of human capital: $F(3, 585) = 5.201$, $p < 0.001$, $\eta^2 = 0.03$.

⁶ The test shows us the existence of differences, unclear, human capital in different positions: $F(2, 1.503) = 10.020$, $p < 0.001$, $\eta^2 = 0.01$.

of fundamental rights, such as freedom and equality, values essential to the sustainable

development of a community.

Table 6 Human Capital Index, according to post-materialism index, by region (average)

	North	Centre	Lisbon	Alentejo	Algarve
Materialism	2.6	2.6	3.1	2.6	2.1
Mixed	2.8	2.7	3.1	2.8	2.5
Posmaterialism	3.0	3.3	3.3	2.9	---

Source: Elaborated by the author based on EVS, 2008.
Base: Entire Portuguese population.

That said, in order to understand the extent to which human capital is related to the aspect of civic-mindedness, the *civic morality index* was created based on five variables that we believe can represent a citizen's sense of civic responsibility⁷.

The data show that individuals with higher levels of human capital are also those who exhibit greater propriety⁸, which gives an average of 9.2 among those who have a high level of human capital on a scale where 1 represents least civic-mindedness and 10 the most, against an average of 8.6 of civic respect of those at the lowest level of human capital⁹.

3.3 Human capital and the option for freedom

Human capital, as already mentioned, should be understood as an amount of intangible assets available to individuals for their harmonious development. The concept of education is an essential part of human capital. This capital is therefore essential to the personal and social fulfilment that aims primarily to increase satisfaction, but not necessarily linearly, of spiritual, socio-cultural and material needs. In other words, human beings can only attain well-being in harmony with the environment, which is only possible from a perspective of freedom. Therefore, develop-

ment also assumes an environment of freedom. We can then ask: is it possible to create without breathing an ambience of freedom? Naturally, creativity involves venturing along new paths, untested, and assumes ridding oneself of many shackles and many systems. This is the only way to think. The answer to the human desire to fly, only became possible when a flying machine was conceived, designed and built in the industrial revolution. Before a dream comes true it has to be thought of, and for that we need inner freedom to conceive it.

Unfortunately, freedom and the consequent creative and innovative capacity tend to fade inasmuch as humans conform to the homogeneous standards of society and rigid systems of education that confine any entrepreneurial spirit.

Thus, individuals and communities will have more benefits the more is invested in an education that promotes freedom, and more tools will thus be given to exercise the creativity that is in fact an investment in strategies that foster new answers to problems, new and old.

To understand how human capital interconnects with freedom, we looked at the questions on the EVS to find the best that would express this aspect and found two possible analysis variables: the first on the role of the state, to show the extent to which a controlling state is preferred¹⁰; the second linked more to the values and identities of the political field, to show the priority of the individual faced the choice between freedom or equality¹¹.

⁷ The index was based on the following variables: Not issuing receipts so as not to pay taxes; Lying in your own interest; Claiming state benefits without entitlement; Avoiding taxes if there is an opportunity; Accepting a bribe to perform duties. The reliability of the index shows good consistency: $\alpha = 0.81$.

⁸ Although weak, there is a positive linear relationship between the index of civic-mindedness and human capital: $r = 0.07$, $p < 0.05$.

⁹ There are significant differences of civic-mindedness between the different positions of human capital: $F(3, 1.548) = 2.839$, $p < 0.05$.

¹⁰ In the original question, respondents were asked to rate themselves on a scale of 1 to 10 about whether the state should give more leeway to companies or should control them more. For analytical purposes, we inverted the variable.

¹¹ In the original question, respondents were asked which of the following statements best matched their view: A. I think that freedom and equality are important. But if I had to choose between the two, I would choose freedom, i.e. each person able

Examining both issues, it appears that individuals with greater human capital are also those who express the idea of a state having less control over business life ($r = 0.09$, $p < 0.005$). Regardless of the level of human capital, individuals prefer a state that allows companies more freedom, but the averages¹² that lie in the middle of the scale for all positions of human capital show us that, although the state should give freedom to business life, it should not be totally absent from it. This is seen in two questions: first, the rejection of a state able to arrange everything and that destroys business life as a framework for the exchange of goods and services; second, the idea of denying every kind of state intervention is rejected, and so, since individuals with *average levels* of human capital are in favour of freedom, the idea that they are also in favour of the dialectic between the freedom that the state allow and the control and it ought to exert over companies, showing that the state and business are not mutually exclusive, but complementary realities is clearly expressed by the average of 6.2 (from 1-10, where 10 indicates that the state should allow companies more leeway to act).

Turning now to the second question, it appears that individuals who opt for *freedom*, that is, being left to their fate and developing according to their own free will, are those with higher average human capital (2.39), relative to individuals who prefer equality (2.27), which is simply care for the other. It is important to note that the largest differences in human capital are not found among individuals who make these two choices, but between those who prioritize *freedom* and those who *disagree* that *freedom and equality are important*, who have an average human capital of 2.19¹³.

When analysing this same issue by region of the country, we see that in the Algarve there are the most pronounced differences, since it is the individuals who say that prefer freedom to

equality with a considerably higher human capital (average of 3), while those who claim to prefer equality reveal a relatively lower level of human capital (average of 1.8) (see T. 7). In the North and Alentejo regions, this issue does not differentiate individuals with higher or lower levels of human capital, and is therefore not a differentiating aspect in the formation of the values of these individuals (see T. 7).

It is also important to focus on another aspect that the data fail to foresee and which relates directly to the issue of equality, i.e. higher human capital corresponds not only to greater choice for *freedom*, as already mentioned, but also for *equality*, so it is clear that progress goes hand-in-hand with inclusive attitudes, with no-one disadvantaged, and that the differences between social classes should not be as pronounced, by making social equality necessary for sustainable development.

3.4 Satisfaction with life

To better understand, within the argument of this paper, the concept of sustainable development we must remember that every human being has the purpose of achieving their happiness, which is nothing more than a subjective concept which involves the notion of harmony in a given personal and social context. Various factors related to nature, spirituality, society, thought, etc., contribute to this. The well-being that each individual will feel throughout life depends on the balance of these factors, and well-being is the barometer of satisfaction with life.

Leaving aside all the literature review on this subject that has been thoroughly worked on (among others, Schwars & Stone, 2004; Díaz *et al.*, 2006; Giddens, 2009; Easterlin, 2010), let us focus on the issue we intend to study here, which is the relationship between human capital and life satisfaction.

Based on a variable from the EVS, which asks about the degree of satisfaction felt, considering all aspects of life, it is found that as you increase the level of human capital so the degree of life satisfaction also increases ($r = 0.11$, $p < 0.001$). And the averages corroborate this trend, since individuals with lower levels of human capital are those who presented also more dissatisfied with life (very low 6.22 and low 6.85, on a scale of 1-10, where 1 is dissa-

to live in freedom and develop at will; B. Freedom and equality are important. But if I had to choose between the two, I would choose equality, i.e. that no one is disadvantaged and that the differences between social classes are not as pronounced. There are three response options: agree with statement A; agree with the statement B; do not agree with either.

¹² There are significant differences of opinion of individuals in relation to what the state's should position between the different levels of human capital ought to be: $F(3, 1.429) = 5.622$, $p < 0.005$, $\eta^2 = 0.01$. People with a Very Low level of human capital have an average of 5.30; Low, 5.81; Average, 6.17 and High, 5.73.

¹³ $F(2, 1.481) = 7.626$, $p < 0.005$, $\eta^2 = 0.01$.

Table 7 Value of freedom and equality, according to the Human Capital Index, by region (Average)

	North	Centre	Lisbon	Alentejo	Algarve
Opting for freedom over equality	2.3	2.3	2.8	2.3	3.0
Opting for equality over freedom	2.3	2.2	2.5	2.3	1.8
Neither	2.3	2.1	2.2	2.3	1.7

Source: Elaborated by the author based on EVS, 2008.
Base: Entire Portuguese population.

tified and 10 is satisfied), and paradoxically to these, greater life satisfaction corresponds to the highest levels of capital (average 6.96 and high 7.06), which shows that individuals with higher levels of education, greater job stability, more distinctive professions, etc., are those who are more at ease with life. It is also worth noting that, although there are significant differences regarding well-being between different levels of human capital ($F(3, 1.539) = 7.514, p < 0.001, \eta^2 = 0.01$), average levels of well-being are above the average range, which means that the general Portuguese population finds satisfaction in life.

If we observe the relation between the two variables by region of the country, it is verified

that in the regions of the North and of the Centre there is a gradual tendency for the higher level of human capital to also find a higher level of satisfaction with life. In Lisbon and Alentejo, this trend is not clear, for example, in Lisbon, it is the opposite, that is, is among the individuals with the lowest and highest capital level that one finds the greatest satisfaction with life (average of 7 and 7.2, respectively), and in the Alentejo it is among the individuals with the average human capital level that there is the feeling of greater satisfaction with life (see T. 8).

Table 8 Human Capital Index according to satisfaction with life, by region (Average)

Levels of HC	North	Centre	Lisbon	Alentejo	Algarve
Very low	6.4	6.0	7.0	5.5	7.0
Low	7.2	6.5	6.6	6.8	7.6
Average	7.4	6.4	6.9	6.9	6.0
High	7.5	6.6	7.2	5.5	---

Source: Elaborated by the author based on EVS, 2008.
Base: Entire Portuguese population.

4. DISCUSSION OF THE RESULTS

Human capital has been studied in many forms and from many different areas. We set out to develop a novel measure of human capital from components available in the database of the *European Values Survey*. It is understandable, therefore, that the variables that we use and that compose this measure depended on those provided by the survey, so our results

would be different if other components had been used.

In recent decades Portugal has stepped up its level of education, combating school drop-out rates and heading to the goal of compulsory education up to 18, goals that have seen very remarkable progress. In addition, there has been a very substantial increase in the proportion of the population obtaining a university degree.

Since education is one of the core components of human capital, the younger generations who are better educated naturally have higher levels of human capital compared with older generations, socialized at a time when not everyone had the same opportunity to attend school and so have lower levels of human capital.

What is said here in relation to levels of education, can be mentioned with respect to other components of human capital that are directly or indirectly related to education, such as employment status, occupation and pay. That is, the higher the educational level the greater the distinction in terms of profession, pay and occupation, so if access to education for the older generations was the prerogative of only some families, it is easily understood that only certain social strata, with easier access to colleges and universities could aspire to more social recognized professions, occupations and decent salaries.

That said - and since the improvement in education has been more intensified in recent times, which is naturally a positive sign, but it will take time to cover the entire population - so it is understood that Portugal's level of human capital is below the average of the scale (2.8 on a scale of 1 to 5), regardless of the region of the country, although Lisbon is above the scale average (3.1). Nunes *et al.* (1989) and Valério (1993), noting the low educational levels of the Portuguese, have already drawn attention to Portugal's difficulty in achieving sustained levels of development.

To better understand the values implied in different levels of human capital, we set out with two major theories soundly backed by empirical evidence and which are based on the principle that modern societies are going through a process of socio-cultural convergence, becoming on the one hand more autonomous and individualist (Vala, 1993; Halman, 2003), and, on the other, more post-materialist, representing greater engagement with ideas of *self-fulfilment* and *participation* (França, 1993; Inglehart, 1997; Freire, 2001).

Crossing the theory of individualization with human capital, we find that individuals with the highest levels of this capital also have values of greater *independence* and *determination* that, at the opposite extreme, i.e. with the lowest levels of human capital, were individuals who prioritize values linked to traditional principles.

Since this theory is directly oriented to that of post-materialism, one would expect that individuals with more human capital also choose more post-materialist values. The results of ANOVA entirely bore out this assumption, revealing that individuals with higher human capital also prioritized the ideas of self-fulfilment and participation rather than survival and economic well-being, which occurs throughout the country, regardless of the region.

Since many of the studies on human capital have focused on its impact on economic life, we do not find one that directly corroborate the positive correlation between human capital, individualisation and post-materialism. Nonetheless, we believe it makes perfect sense in light of the knowledge society, since this implies, as Bontis *et al.* (1999) notes, human resources able to learn, entrepreneur, innovate and create, which is, in turn, a language very familiar to those who have higher educational levels, more differentiated professions, etc., which are also, as the correlation shows, those who assign the highest priority to the values of autonomy, self-fulfilment and participation.

Another issue we have discussed concerns the relationship between human capital and civil-mindedness. It was shown that individuals with higher human capital are also those with the greatest respect for others and for meeting the fundamental, inalienable rights of the human being, i.e. people with better education also have a greater sense of public responsibility. This theory is not new and many authors refer to the importance of education in maintaining the public good and propriety. Bendix (1996) stated that education, as a universal question and as an institution whose guardian is the state, has become the essential tool for the training of citizens with equal rights and responsibilities.

Faced with the question of freedom, we come to the idea that individuals with greater human potential prioritize freedom of action for companies and deviate from the idea of state control. However, the averages in the middle of the scale leave open the possibility that, on one hand, freedom of action is essential for creative work, fruitful thinking, and imaginative action, which are key concepts of entrepreneurial culture and of course, facilitator of new initiatives and knowledge, and, on the other hand, that the State should not have a completely hands-off approach to firms, thus

showing that the state and business organizations are not antagonistic, but that they are both essential to the good social, cultural and economic development of society.

This question linking human capital and the freedom of the individual as a key factor of ability to innovate and thus of greater socio-cultural and economic development, was expressed in September 2011, at the Lisbon Summit, in which, reflecting on skills and human capital, it was reaffirmed that human capital is the crucial factor for accelerating growth and innovation (Schleicher, 2011). Teece *et al.* (1997) and Alegre *et al.* (2006), likewise, showed the positive effects of human capital on the innovative capacity of individuals.

Finally, a word about the relationship between human capital and life satisfaction. As we have seen, the two concepts are multifactorial phenomena comprising several components that are interlinked. Jullien (cit. in Fraser, 1964: 35) refers to human capital, particularly education, as "the basis of social building" on which the whole notion of happiness rests, and Kaloyiannaki (2002) believes that education is key in the intellectual and moral "renaissance" of mankind and operates on the national well-being. Now, the idea of satisfaction or notion of well-being arises in the individual as the result of their interaction with the goods necessary to live, which are no more than the confluence of economic, cultural, psychological and political variables that act as decisive factors at the time of perceiving satisfaction towards life.

Our study shows a positive correlation between human capital and life satisfaction, although there are differences between the perception of satisfaction by level of human capital. The Portuguese, in general, and regardless of the region where they live, are satisfied with their life. This approach leads us to infer that the perception of satisfaction is not directly related to economic well-being, because, if it were, the Portuguese would be much more dissatisfied with life, deeply mired in crisis as the country is. This confirms that the concept of satisfaction is a complex phenomenon which does not depend, as Sen (2002) notes, only on material conditions, but on social results like recognition, personal affirmation or having one's basic needs satisfied, indicators that served, moreover, to create the Human Development Index (HDI) of the United Nations.

That said, based on the theories of growing independence from society and the rise of post-materialist values - which, on one hand, emphasize the values of self-fulfilment and independence and, on the other hand, prioritize determination and freedom - the hypothesis advanced in this study is supported, this meaning that human capital not only encourages a more creative and innovative society, key concepts that drive the knowledge society, but that it also fosters a human and social development, which is manifested in the construction of a society that is more equal and enjoys greater well-being.

When finished the discussion of the results, we must emphasize that one of the major limitations of this study is the concept of human capital itself, since the dimensions that integrate it quantify qualities that are difficult to evaluate. See, in this regard, the diversity of techniques used by specialists to measure human capital. On the other hand, in this specific case, as mentioned above, the variables we work with are those that the survey makes available, so we cannot rule out the possibility that these indicators may be imperfect for measuring human capital; they were in fact however those that made this measure possible. In fact, one of the major limitations of this study is precisely the level of internal consistency of the scale which, despite being within acceptable standards for such a study (Loewenthal, 1996), requires greater care in interpreting and generalizing results.

The limitations mentioned here may, in a forthcoming study, give rise to the restructuring of this scale, introducing other indicators with greater relation between them, reinforcing the same construct and thus increasing the very consistency of the scale.

This study still leaves open a set of questions. First of all, the close relationship between human capital and technical progress, a theme that has not been addressed here, but which it would be interesting to explore given the positive effect of human capital not only as a productive factor but also as a factor that stimulates technical development, by allowing to work with equipment increasingly volatile and complex.

Another very hot topic for the present days and that relates to the *degree of satisfaction with life* is the relationship between human capital and migratory movements. The question could be understood as the relation be-

tween this capital and the propensity to emigrate.

Finally, another line of research that this study raises is the relationship between the human capital endowment of less developed regions and the choice of healthier lifestyles.

In any case, this study has contributed to raising awareness that human capital is central to development in general and to regions in particular, so a lack of human capital endowment can result in a clear limitation of the development possibilities.

5. CONCLUSION

There is empirical evidence that shows that human capital is essential to the development of a society, since it encourages a culture of continuous learning, willingness to innovate, to find new solutions to problems old and new, and this determination is supported by knowl-

edge, high value crops which favours more entrepreneurial and creative cultures.

But if knowledge is fundamental for the development of a community, concern for one another and for their fundamental rights is certainly no less important. Here, too, human capital is a good guarantee of propriety.

In fact, individuals with higher educational levels, from more advantaged family backgrounds, with more differentiated professions and higher salaries, i.e. with more human capital, are those who are more satisfied with life. It may thus be said that the variables that make up human capital have a crucial influence on personal and social development and, ultimately, maximize social welfare.

By analyzing this factor by region, we find very different levels of human capital, which justifies divergent levels of progress and, naturally, regional divergence in education, work, salaries and other essential aspects of life.

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